

Application No. 09/762,846

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claim 1 has been amended as follows:

1. (Amended) A piezo-oscillator comprising:
an oscillator circuit including a piezo-vibrator and an amplifier circuit, [and]
a constant-voltage circuit[, in which] connected to a power source, and
a first switch circuit that connects, by selection, either one of said power source and said
constant-voltage circuit to said amplifier circuit; wherein
said first switch circuit
selects said constant-voltage circuit when a voltage to be supplied from said
power source is equal to or lower than a predetermined value and
selects said power source when a voltage to be supplied from said power source
is higher than said predetermined value
[said oscillator circuit are connected through said constant-voltage circuit to supply a constant
voltage to said oscillator circuit, wherein when a voltage of said power source is equal to or
higher than a predetermined value, a function of said constant-voltage circuit is invalidated].

Claim 2 has been amended as follows:

2. (Amended) A piezo-oscillator comprising:
an oscillator circuit [a piezo-oscillator] including a piezo-vibrator[,] and an amplifier
circuit,
a second switch circuit connected to a power source line for said oscillator circuit, [and]
a constant-current circuit connected to said second switch circuit, and
a resistor connected to said second switch circuit; wherein
said second switch circuit
connects said power source line and said constant-current circuit when a voltage to be
supplied from a power source is equal to or lower than a predetermined value, and

connects said power source line and said resistor when a voltage to be supplied from said power source is higher than said predetermined value

[, wherein when a voltage of said power source is equal to or higher than a predetermined value, a function of said constant-current circuit is invalidated].

Claim 3 has been amended as follows:

3. (Amended) A piezo-oscillator comprising:
an oscillator circuit including a piezo-vibrator and an amplifier circuit,
a constant-voltage circuit connected to a power source, and
a frequency control voltage section connected to said piezo-vibrator, and
a first switch circuit that connects, by selection, either one of said power source and said
constant-voltage circuit to said amplifier circuit; wherein
said first switch circuit

selects said constant-voltage circuit when a voltage to be supplied to said
frequency control voltage section is equal to or lower than a predetermined value, and

selects said power source when a voltage to be supplied to said frequency control
voltage section is higher than said predetermined value

[, in which a power source and said oscillator circuit are connected through said constant-voltage circuit to supply a constant voltage to said oscillator circuit, wherein when a voltage to be supplied to said frequency control voltage section is equal to or higher than a predetermined value, a function of said constant-voltage circuit is invalidated].

Claim 4 has been amended as follows:

4. (Amended) A piezo-oscillator comprising:
[a piezo-oscillator] an oscillator circuit including a piezo-vibrator[,] and an amplifier
circuit,

a frequency control voltage section connected to said piezo-vibrator,
a second switch circuit connected to a power source line of said oscillator circuit,
a constant-current circuit connected to said second switch circuit, and [a frequency
control voltage section,]

a resistor connected to said second switch circuit; wherein

said second switch circuit

connects said power source line and said constant-current circuit when a voltage to be supplied to said frequency control voltage section is equal to or lower than a predetermined value, and

connects said power source line and said resistor when a voltage to be supplied to said frequency control voltage section is higher than said predetermined value

[wherein when a voltage to be supplied to said frequency control voltage section is equal to or higher than a predetermined value, a function of said constant-current circuit is invalidated].

Claim 5 has been amended as follows:

5. (Amended) A piezo-oscillator according to claim [1 or] 3, wherein [within in a voltage range in which said function of said constant-voltage circuit is invalidated] when a voltage supplied from said power source is higher than said predetermined value or when a voltage supplied to said frequency control voltage section is higher than said predetermined value, said power source voltage is controlled, and a drive level of said piezo-vibrator is controlled by changing a voltage to be supplied to said amplifier circuit.

Claim 6 has been amended as follows:

6. (Amended) A piezo-oscillator according to claim [2 or] 4, wherein [within in a voltage range in which said function of said constant-voltage circuit is invalidated] when a voltage supplied from said power source is higher than said predetermined value or when a voltage supplied to said frequency control voltage section is higher than said predetermined value, said power source voltage is controlled, and a drive level of said piezo-vibrator is controlled by changing a voltage to be supplied to said amplifier circuit.

Claim 8 has been amended as follows:

8. (Amended) A piezo-oscillator comprising:
an oscillator circuit including a piezo-vibrator and an amplifier circuit, and

a constant-voltage circuit connected to a power source, and a first switch circuit that connects, by selection, either one of said power source and said constant-voltage circuit to said amplifier circuit, or

a second switch circuit connected to a power source line for said oscillator circuit, a constant-current circuit connected to said second switch circuit and a resistor connected to said second switch circuit; wherein

said first switch circuit

selects said constant-voltage circuit when a voltage to be supplied from said power source is equal to or lower than a predetermined value, and

selects said power source when a voltage to be supplied from said power source is higher than said predetermined value; or

said second switch circuit

connects said power source line and said constant-current circuit when a voltage to be supplied from said power source is equal to or lower than a predetermined value, and

connects said power source line and said resistor when a voltage to be supplied from said power source is higher than said predetermined value

[an oscillator circuit including a piezo-vibrator and an amplifier circuit for supplying electric power to said oscillator circuit through a constant-voltage circuit or a constant-current circuit, wherein said constant-voltage circuit or said constant-current circuit is provided with a current bypass switch, a function of said constant-voltage circuit or said constant-current circuit is invalidated by controlling said switch from outside].

New claims 10-13 have been added as follows:

--10. The piezo-oscillator according to claim 1, wherein when said voltage to be supplied from said power source is higher than said predetermined value, a voltage to be supplied to said amplifier circuit is changed by controlling a voltage of said power source, thus controlling a drive level of said piezo-vibrator.

11. The piezo-oscillator according to claim 2, wherein when said voltage to be supplied from said power source is higher than said predetermined value, a voltage to be supplied to said amplifier circuit is changed by controlling a voltage of said power source, thus

controlling a drive level of said piezo-vibrator.

12. The piezo-oscillator according to claim 10, wherein drive level dependency characteristics of said piezo-vibrator are confirmed by controlling said drive level of said piezo-vibrator.

13. The piezo-oscillator according to claim 11, wherein drive level dependency characteristics of said piezo-vibrator are confirmed by controlling said drive level of said piezo-vibrator.--